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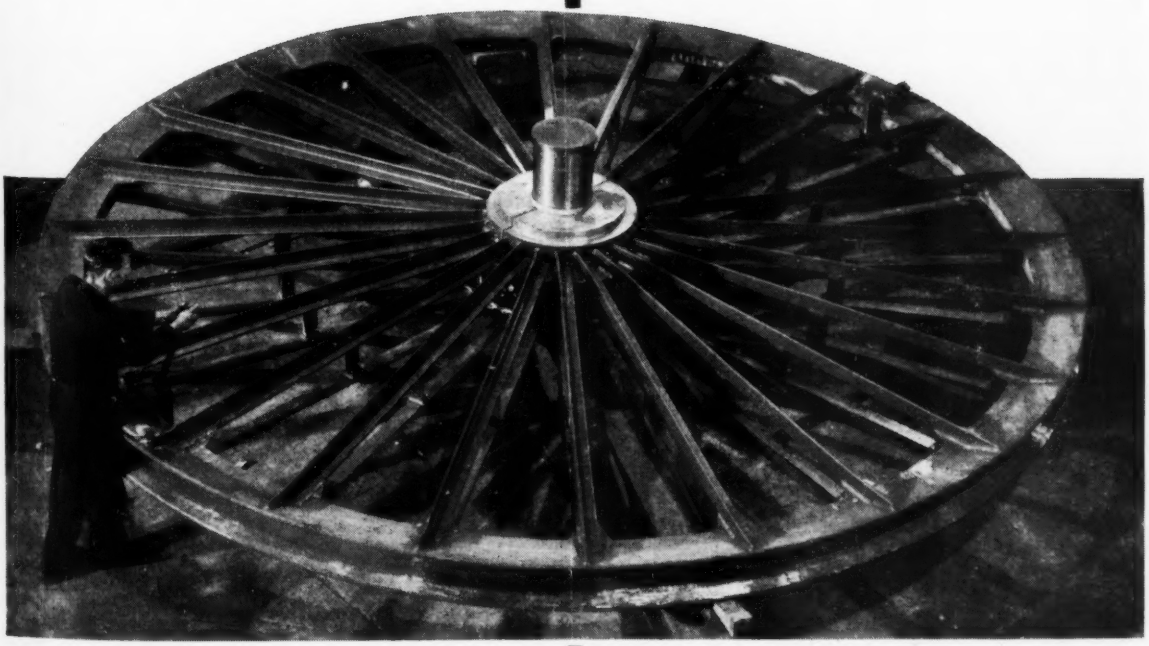

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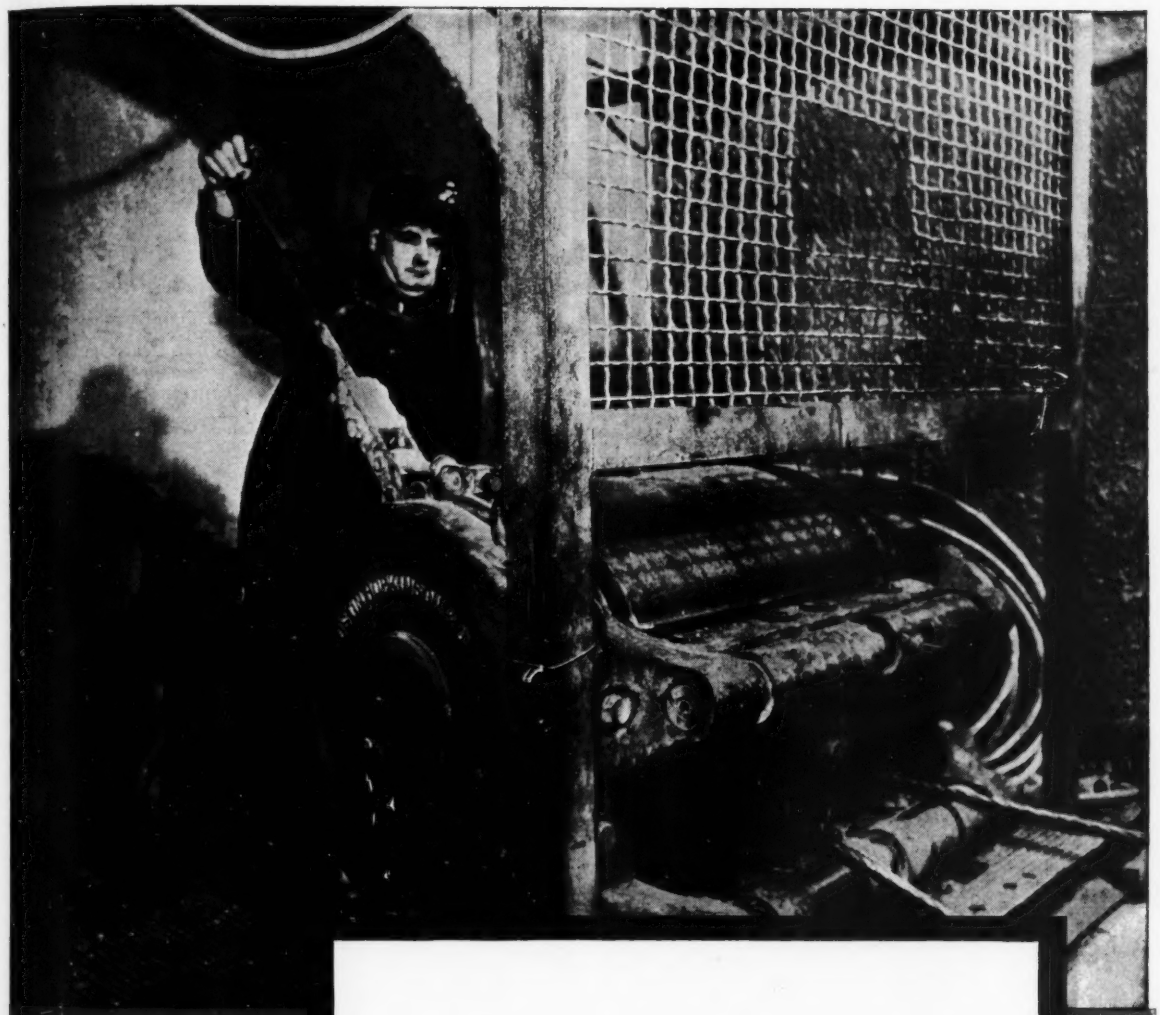

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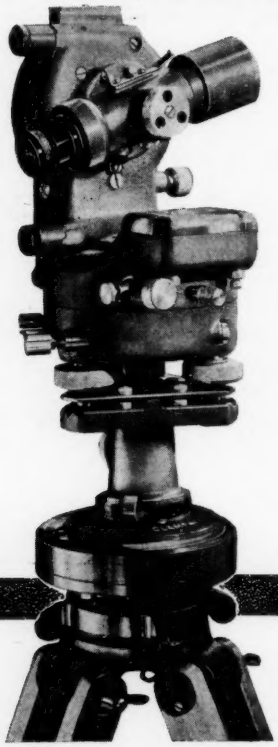

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The Mining Journal

London, February 12, 1960

In this issue . . .

Mining in Malay Reservations	175
Mining Scholarships in Ghana	176
Canadian Mineral Production in 1959 ...	176
Bigger Ore Carriers	176
Yugoslavia's Production and Exports Rise	177
The Canadian Coal Industry	177
Asbestos in Southern Rhodesia	178
Safety in Mines Research	179
New Burdens for Australian Mining ...	180
The Outlook for Non-Ferrous Metals ...	181
Machinery and Equipment	182
Metals and Minerals	184
London Metal and Ore Prices	184
Mining Miscellany	186
Mining Finance	187
Company Meeting	188
Personal	190
More Nylon in Conveyor Belting ...	190

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Mining in Malay Reservations

THE very large areas of the Malay Reservations in the Federation of Malaya are to be opened up for tin mining, announced the Deputy Prime Minister and Minister of Rural Development, Tun Abdul Razak, at the Annual Conference of Commissioners of Lands and Mines in Kuala Lumpur on January 25.

This announcement will, however, do nothing to appease the hunger for new mineral-bearing land to replace worked out mines from which the Federation's tin mining industry is currently suffering. European and Chinese miners, who own and operate over 99 per cent of the country's tin mines have long cast hopeful eyes on the vast areas of the unprospected Malay Reservations. Applications for prospecting licences have always been refused. Likewise suggestions that land in the Reservations known to be tin bearing should be alienated for mining and other non-mineral state land be substituted therefor, in order to preserve the cultivatable area, have been turned down.

The position of the Malay Reservations was referred to in the Report of the International Bank for Reconstruction and Development Mission to Malaya, published in September, 1955, in which the problem was described as complex "in view of the need to protect the position of the Malay cultivators and provide reasonable opportunities for the expansion of their areas of cultivation without interfering with a desirable development of natural resources which could otherwise take place". A re-examination of the policy concerning land use by non-Malays was recommended.

The Land Administration Commission in its report published in 1958 also referred to the large areas set aside as Reservations for Malays and which could not be alienated to non-Malays and said that it was possible that the discouragement of the mining industry from prospecting in these areas could cause considerable damage to the national interest, and the development of large sections of the nation to be retarded.

The Malay Reservations Enactment defines a Malay as "a person belonging to any Malayan race who habitually speaks the Malay language, or any Malayan language, and who professes the Muslim religion". This definition obviously debars the European and Chinese miners, whose courage, industry and financial investment over the past hundred years has raised the country to its present flourishing position as an independent member of the Commonwealth.

How then does the Federation Government propose that the mineral resources in the Reservations should be developed?

The Government has for long been studying ways and means of increasing the participation in industry by Malays, especially in the mining industry in which less than one per cent of active mines are owned and operated by them. A working party appointed by the Government for that purpose has made a recommendation to the National Land Council, which has been accepted, that scout prospecting of Malay Reservations should be carried out by the

Mineral Investigation Drilling Unit of the Department of Mines at the Federal Government's expense. State Governments, who alone are responsible for land matters within their boundaries, will then select areas for which they will encourage applications for prospecting licences and mining leases by Malay individuals, companies and co-operative societies.

Tun Abdul Razak said that for many years Malaya had led all other countries as the largest producer of tin in the world. With foresight and prudent administration, Malaya could maintain that position for many more years to come. Given every encouragement he had not the slightest doubt Malays could be successful miners. He would, he added, particularly like to see more Malays participate in the mining industry although he realised that mining is a risky venture.

Malay businessmen have welcomed the Government's proposal. They point out that tin has been produced in Malaya for many centuries and that prior to the advent of first, Chinese, and then European miners, all the production was in the hands of Malays. The decline in the interest of Malays in mining is mainly attributable to the very great financial risk involved in modern prospecting compared with the old-time primitive prospecting which involved very little, if any, expense. The shouldering of this risk by the Federal Government, or in other words by the general taxpayers, is thought to remove one of the largest detriments to a revival of interest in the industry by the Malays.

The mining industry as a whole welcomes the statement by the Minister that the complex Land Laws and Land Administration which vary from State to State are to be unified in a National Land Code, and that a preliminary Bill is in course of being drafted for presentation to Parliament in April.

MINING SCHOLARSHIPS IN GHANA

At a recent Council Meeting of the Ghana Chamber of Mines, it was reported that ten students were receiving special training at Tarkwa under a scheme of mining scholarships introduced last year.

The idea of scholarship awards was first put forward in January last year by Mr. R. Wilson, general manager of Bibiani (1927) Ltd., who was at that time chairman of the Ghana Chamber of Mines. At a Council Meeting of the Chamber, Mr. Wilson reported that one of the major obstacles to Africanisation was the difficulty of finding men sufficiently well educated to fill the more senior mining positions. He suggested that the mining companies should endow a Lectureship/Mastership at one of the Technical Institutes to train selected students from the secondary schools in mining, and that this might serve as a pilot scheme for the eventual establishment of a mining college in Ghana. After discussion, it was agreed that the Chamber of Mines should finance the scheme to the extent of £5,000 per year, and that an offer be made to the Government, who would be responsible for the administration of the scheme.

Following discussions with the Ministry of Education, an Extraordinary Gazette was published on August 1, giving details of the scholarship awards. The course was to extend over three years and would commence at the Tarkwa Technical Institute in January, 1960. It would cover English and mathematics as well as direct mining subjects. The successful applicants would be required to sign a bond to serve with a member company for three years after completion of the course. The Chamber of Mines guaranteed employment to every successful candidate.

Each successful applicant was to receive £120 per session, of which £60 was to be paid for an inclusion fee covering boarding and tuition fees and the cost of books, stationery, etc. Students were to spend at least three months in every year of the course on vacation practical training at a mine. During this time they would be paid subsistence allowances, which would be additional to the scholarship.

At subsequent discussions with the Government it was decided that a qualified lecturer should be obtained.This position was taken up in September by Mr. J. E. Philpott, of C.A.S.T. A selection committee was set up to interview candidates.

The original intention had been to take 10 candidates, but the number was later increased to 15, and finally the Chamber agreed to a proposal by the Ministry that it should be further increased to 20 to allow for possible wastage.

This important innovation is yet another example of the close and constructive co-operation existing between the Ghana Government and the mining industry.

CANADIAN MINERAL PRODUCTION IN 1959

With large increases in copper, iron ore, nickel; uranium, asbestos and petroleum, the estimated value of Canada's mineral production climbed 13.7 per cent in 1959 to a record total of $2,389,683,000 as compared with the preceding year's $2,100,739,000, according to annual estimates by the Dominion Bureau of Statistics. Decreased values were posted for gold, lead and coal.

Metals were valued at $1,359,032,000, one-fifth larger than the preceding year's $1,130,160,000. Uranium continued to be the leading metal with a value of $324,550,000 versus $279,538,000 in 1958. Nickel was next largest with a sharp gain in value to $257,173,000 from $194,142,000, followed by copper with an increase to $233,296,000 from $174,431,000, and iron ore to $186,206,000 from $126,131,000. Value of zinc rose to $96,563,000 from $92,601,000, silver to $28,381,000 from $27,530,000, and platinum to $10,952,000 from $9,481,000. Gold dropped to $149,213,000 from $155,334,000, and lead to $39,574,000 from $42,414,000.

Non-metallics as a group increased 16.5 per cent in value to $176,230,000 from $150,355,000. Asbestos output rose to $106,592,000 from $92,277,000, salt to $17,462,000 from $14,990,000, gypsum to $8,890,000 from $5,189,000, and peat moss to $6,128,000 from $4,779,000.

Value of minerals produced in Ontario in 1959 rose to $962,757,000 from $789,602,000 in the preceding year, accounting for 40.3 per cent of the national total versus 37.5 per cent in 1958. Quebec's output was valued at $432,820,000 or 18.1 per cent of the all-Canada total versus $365,706,000 or 17.4 per cent. Alberta's value was $378,142,000 versus $345,939,000, and Saskatchewan's $213,744,000 versus $209,941,000.

Next in order was British Columbia at $157,281,000 ($151,149,000 in 1958); Newfoundland, $72,307,000 ($64,995,000); Nova Scotia, $59,486,000 ($62,707,000); Manitoba, $58,067,000 ($57,218,000); New Brunswick, $18,391,000 ($16,276,000); North-west Territories, $24,267,000 ($24,895,000); and Yukon, $12,422,000 ($12,311,000).

BIGGER ORE CARRIERS

Steel marches on. In the space of a few months British steel has accomplished its ascent from the most profound depression since the war and is now establishing new output records.

In this achievement the U.K. does not stand alone. After a hold-up lasting for 117 days it is not surprising that American steel plants are turning out bigger tonnages than ever before. There is much leeway still to be recovered and vast investment plans are afoot to attain still greater heights of productivity.

Similar conditions prevail in Western Europe where last year's ingot output was the highest ever and is still rising. Russian steel claims the most spectacular expansion, India and China are engaged upon great steel development plans, and many of the smaller countries have projects afoot to provide in some measure for their own steel requirements.

Collectively all these preparations for a huge upsurge in the manufacture of iron and steel obviously foreshadow an immense increase in iron ore requirements which has been matched by the development of new sources of supply and the further expansion of existing resources. There is no reason to doubt the adequacy of world iron ore supplies in the immediate future.

Transport is the more pressing problem: transport from the ore fields to the loading ports, ocean transport where those ports are distant from the chief consuming centres, and the improvement of carrying facilities which embraces also the more rapid handling of ore cargoes at loading ports and the points of discharge.

A partial solution is the enlistment of the services of specialized ore-carrying ships of much bigger capacity. Some of these vessels already afloat have a dead weight tonnage of 60,000 to nearly 100,000 tons, but their range of service is limited by the accommodation for these ocean giants at the ports of loading and discharge.

This is a difficulty which cannot be speedily surmounted and in any event it takes no cognizance of the many smaller ports whence are shipped a large proportion of the supplies for the blast furnaces of the U.K. and Western Europe. For physical reasons, the bigger ore carriers cannot be employed on these traffic routes.

It is significant that the new fleet of ore carriers, built to the order of B.I.S.C. (Ore) Ltd. ranges in dead weight capacity from 10,000 to 15,000 tons. But if the trend in favour of bigger ships for ore shipments must of necessity develop slowly, it will eventually be accelerated.

So much is indicated by the conditions attached to the consent of the Iron and Steel Board to the plans of the Steel Company of Wales to raise steel moving capacity of the Margam works at Port Talbot from 3,000,000 to 3,600,000 tons a year, and to increase sheet and tin plate production by 400,000 tons a year.

The Board's approval of a project estimated to cost £13,000,000 is conditional on arrangements being made to enable large ore-carrying ships of 25,000 tons and upwards to be employed.

At present Port Talbot can only accommodate ore carriers up to 8,000 tons. Big improvements in harbour facilities will be necessary before 25,000 tonners can be employed and it is understood that these improvements are now under discussion with the British Transport Commission.

Not improbably Parliamentary assent will be needed to enable the scheme to go forward and although the march of progress is unlikely to be stayed on that account, the "inevitability of gradualness" is recognized in the transition from small to bigger ore carriers, as a fact which cannot be ignored.

YUGOSLAVIA'S PRODUCTION AND EXPORTS RISE

Recent issues of the official Yugoslav bulletin *Economic News of Yugoslavia* state that Yugoslavia's output and exports of mined products and processed minerals are growing steadily and are planned to expand further in the future.

With a large order placed for the current year by Poland and interest strong in Swedish, West German, Italian, Egyptian, French and Austrian quarters, particular stress is being laid on the development of the country's bentonite industry. Bentonite exploitation is being expanded at the Petrovac-na-Moru site and a new bentonite crushing plant with an annual capacity of 15,000 tonnes is stated to be under construction. The total 1959 bentonite exports achieved by Yugoslavia—some 12,000 tonnes—are to be increased considerably in the future. Aggregate bentonite deposits in the country are estimated at 60,000,000 tonnes.

The bauxite industry, too, now exporting at the rate of about U.S. $9,000,000 per year, is also under process of expansion. Recent analyses show that Yugoslav bauxite has an average content of 55 per cent Al_2O_3 plus small quantities of silicon dioxide. Some deposits, such as those of the coastal reserves of Maslenica, contain trihydrate bauxite, others monohydrates. The United Kingdom is one of the country's leading customers for bauxite.

In the production of sinter magnesite, greater efficiency of output is being brought about by the improvement of processing methods at the Magnohrom plant. It is at this magnesite centre that extraction and processing will be merged into a single combine, with the intention of cutting costs. In the first half of last year alone some 42,818 tonnes of sinter magnesite was produced as compared to only 39,018 tonnes in the same period of 1958; of the 1959 figure some 21,700 tonnes were sold for export.

The ferrous metals are also provided for in the country's industrial development planning programmes. With a new ore concentration plant recently completed at Ilijas Iron Works, another stage of the national iron and steel development plan has begun which embraces improvements and extensions at the Vares Mines and Ironworks combine which are scheduled to raise iron ore production to 1,750,000 tonnes per year by 1961 and to 2,250,000 tonnes annually by 1966. Output is rising fast in the ferrous metals field. In the first half of 1959 some 620,603 tonnes of raw steel were produced as compared with a total of 566,599 tonnes for the same period of the previous year. Ferroalloys were exported by Yugoslavia over the same 1959 period to a total of 11,449 tonnes.

Base metals are becoming of increasing importance to the country, and over the first half-year of 1959 exports of these totalled a value of 6,669,000,000 dinars. Specific exports over the period by weight were 28,254 tonnes of lead, 3,643 tonnes of electrolytic zinc, 5,400 tonnes of finished copper, quantities of graphite products and 5,000 tonnes of aluminium products and semi-products. The output of this last section rose by nearly 100 per cent over the year July, 1958-July, 1959, 1959 half-yearly production of aluminium rolled products and alloys standing at 12,762 tonnes as against the output for a year before of no more than 6,761 tonnes.

THE CANADIAN COAL INDUSTRY

A report by the Dominion Coal Board reveals that internal coal consumption is now running at the lowest annual rate for twenty years. As in many countries the reasons given for this drop in demand are cheap oil, natural gas and hydro-electric power. The current year will probably be "another year of crisis" according to the report but the condition of the industry may eventually improve due to overall rising energy needs—to be met by coal-fired power stations.

However, the present situation is serious and despite short time working over the past two years the giant Dominion Steel and Coal Corporation have announced further production cuts to be made in the near future. This short-time working will affect 6,500 miners at six of the pits controlled by Dosco. The company has, however, decided against permanently closing Florence Colliery, one of three Cape Breton mines threatened with closure last October.

Asbestos in Southern Rhodesia

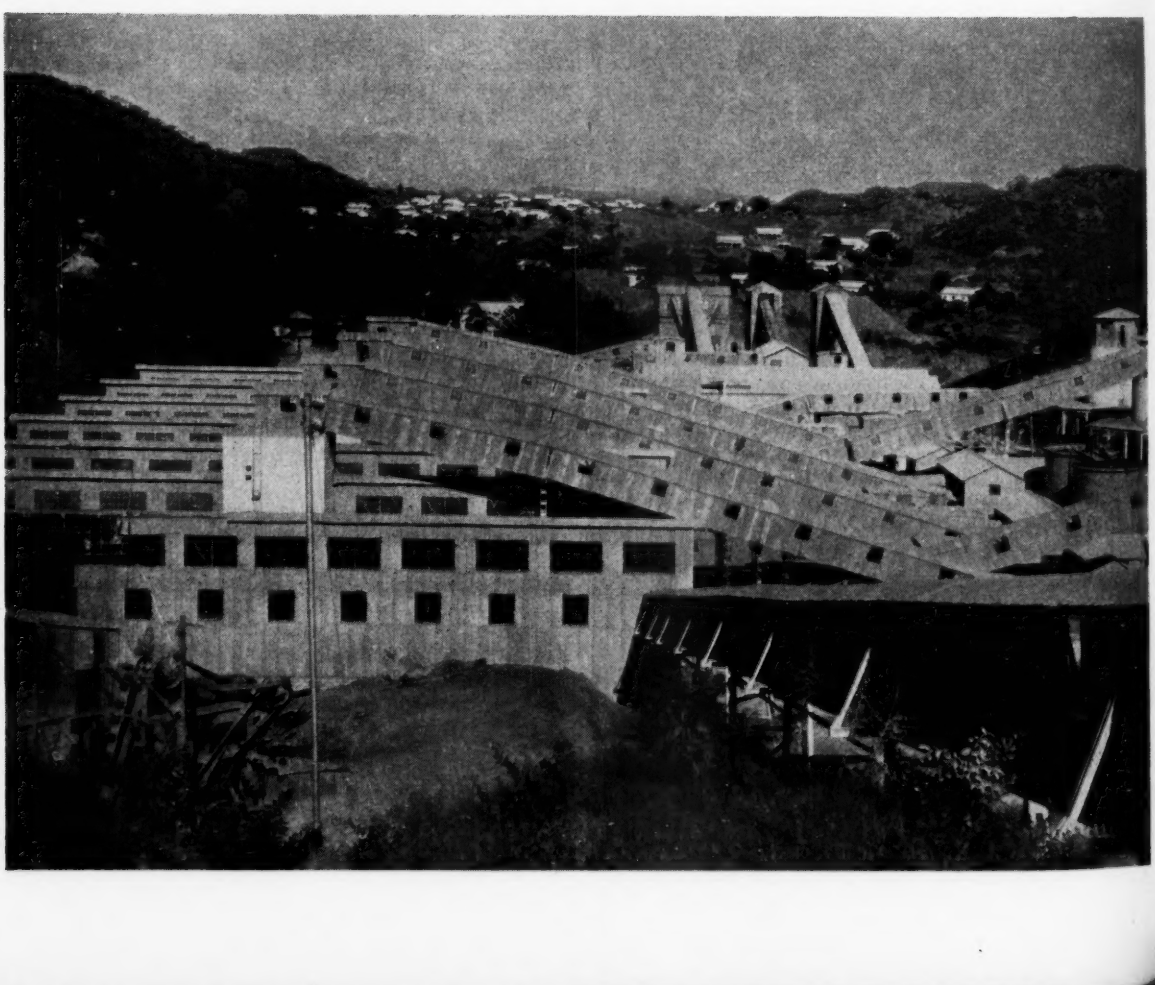
The structure of the asbestos industry in Southern Rhodesia is described in the annual report issued last year by the Chief Government Mining Engineer and the Chief Inspector of Mines in Southern Rhodesia. All tonnages quoted are short tons. Illustration shows the mill area of the Shabanie mine.

ALL asbestos produced in Southern Rhodesia is of the chrysotile variety which is the principal commercial form in the world today. The industry has become firmly established in value as the principal mineral product and export in Southern Rhodesia. Excluding the Soviet Union, Southern Rhodesia, Canada and South Africa comprise the large asbestos producing countries in the free world. Yet, these countries consume relatively small quantities of the mineral. On the other hand, the large consumers, i.e., the United States, the United Kingdom, France, Italy, Germany, and Japan produce either no asbestos or only small quantities. Consequently, the foreign market is overwhelmingly the most important for the Southern Rhodesian industry.

Current Position and Future Prospects

In 1958, asbestos, in common with most other industrial minerals, was faced with complex marketing problems. The expanding Canadian production has resulted in a competitive market, and, together with the lower level of world industrial activity not omitting to mention the growing exports to the European market by the Soviet Union, the problem of marketing is becoming increasingly difficult for those producers in Southern Rhodesia who are not fortunate in having associated companies manufacturing asbestos products.

A unique feature of the Southern Rhodesian industry is the production of the top grade spinning fibres—crudes—No. 1 and No. 2 on the Canadian grading system, amounting to 2,787 tons whereas the foremost Canadian industry with a total production of over 1,000,000 tons per annum, records less than 1,000 tons of crude produced.



Analysis of Production

An analysis of the production shows that crudes account for approximately 2.20 per cent milled fibres, Nos. 3, 4 and 5 Canadian grades at 82.10 per cent and " shorts ", No. 6 and 7 grades at 15.64 per cent. The comparative statistics for Canada are 65 per cent shorts and 35 per cent milled fibres. These figures of Canadian production show the potential market for shorts which unfortunately is not shared by Southern Rhodesia due to its remote geographical position. The relatively low market price for shorts and the long haulage and shipping distances involved to reach the consuming market severely handicap production in Southern Rhodesia. Nevertheless, in spite of these adversities, the Vanguard Asbestos Mines Pvt. Ltd., has been successful in marketing a properly prepared grade 7 asbestos fibre and the results for 1958 have been sufficiently encouraging to warrant the contemplation of an extension to the plant specially installed for this purpose. There is no doubt also that the Southern Rhodesian Government's decision to waive the royalty on grades Nos. 6 and 7 has materially assisted this new development.

Structure of the Industry

The main characteristic of the industry is that the principal producing companies are associated with the English company, Turner and Newall Ltd., who are extensively engaged in the manufacture of asbestos goods, magnesia, pharmaceutical products and asbestos automotive products at plants in Canada, United Kingdom, United States and India. The mines controlled by the group account for 75 per cent of the total production and 83 per cent of the total value of production for 1958. These statistics include the production by Rhodesian Asbestos Co. Ltd., associated with the Canadian Johns-Manville Co. Ltd. which changed ownership towards the end of 1958 when the Directors of Turner and Newall Ltd. announced the acquisition by their Rhodesian Mining subsidiary, Rhodesia and General Asbestos Corp. Pvt. Ltd. of the entire issued share capital of Rhodesia Asbestos Co. Ltd. for a consideration of £1,640,000.

The remaining 25 per cent of the production is produced by some 15 companies whose product is marketed on the various world markets principally in Europe and India except in the case of one mine where the product is consumed by an associated company in Sweden.

There were 19 mining companies operating asbestos mines in 1958 which employed a total of 759 Europeans and 11,741 Africans.

A standard grading system is not used by the various producers, therefore an exact record of the various grades is not available. It has been estimated, however, that production to the nearest Canadian Test Box standard is as follows:—

Grade	*Tons*	*Percentage of Total Production*
No. 1	317	0.25
No. 2	2,470	1.95
No. 3	15,317	12.05
No. 4	48,664	38.28
No. 5	40,381	31.77
No. 6	14,065	11.06
No. 7	5,828	4.58
Unclassified and rough concentrate	71	0.06
TOTAL	127,115	100.0

Safety In Mines Research

THE work of the Safety in Mines Research Establishment, Ministry of Power, is reviewed in *Safety in Mines Research* 1958, now available from H.M.S.O. (5s. nett.).

When the eight serious gas explosions that occurred in British mines between November 1956 and the end of 1957 (1957 Annual Report, p. 11) were fully investigated, they were found to have much in common, states the report. Certainly seven, and probably all eight, were caused by unsuspected concentrations of methane at the roof. Clearly, there is a need to know much more about the dispersion and accumulation of methane in mines. This information is being provided by the work on methane roof layers that was started in 1956. The problem is a special aspect of the more general problem of the way fluids mix under the combined action of buoyancy and turbulence, and a research contract was placed with Manchester University for work, under the direction of Professor P. R. Owen, on the mixing of fluids of different densities. Work has been done on the entrainment of a fluid at rest, or in slow laminar motion, into a turbulent layer of another fluid moving under the action of buoyancy along a flat roof at various slopes. At S.M.R.E., theories are being developed to explain the general behaviour of roof layers, and these theories are being checked by laboratory experiments with liquid models. Large-scale experiments with methane are being carried out in the underground roadway at Buxton. The first object of the work is to gain an understanding of the ways in which roof layers form and the best way of dispersing them.

In the 1954 Annual Report (p. 38) the first news was given of the development at S.M.R.E. of the foam-plug technique, a new method of fighting mine fires. Recent information from abroad shows that the idea has now been taken up in other countries including Japan, Poland, the United States (Hartmann and others, 1958), and the Soviet Union (Sukharevski, 1958). During 1958, the possibilities and limitations of the method were further explored at S.M.R.E. by using the foam to extinguish a series of intense experimental fires in the underground roadway at Buxton. Experimental work on this programme, which included the tests of foam movement in mine roadways reported last year, is almost complete and arrangements are being made for the National Coal Board to familiarize themselves with the system and to assess its value in practical situations.

Part of the work of the engineering and metallurgical sections which is nearing completion is the development of stronger and lighter roof supports. Underground trials of newly developed road-head supports are being made with the assistance of the National Coal Board and the Inspectorate.

Photo-elastic stress analysis is being further developed to give detailed pictures of the complex stress distribution in cage-suspension components. This method of analysis is more effective than calculation in locating and evaluating local stress concentrations, for conventional calculations may sometimes grossly under-estimate local stresses.

Pneumoconiosis research follows the same broad lines as in previous years and is aimed at linking the incidence and progress of pneumoconiosis with the concentration and character of dusts breathed by miners.

The development of reliable dust-measuring instruments has proved a difficult task and although useful instruments are now available, they all have limitations. Recent work on light scattering and absorption phenomena (Hulst, 1957) offers a possibility of improving instruments based on these principles, and a member of the staff has been posted to work with Dr. C. N. Davies of the Environmental Hygiene Research Unit of the Medical Research Council to investigate this possibility. Dr. Davies has been appointed consultant to S.M.R.E. on the physics of fine particles.

NEW BURDENS FOR AUSTRALIAN MINING

From Our Own Correspondent

INDUSTRY in Australia received two severe shocks in the recent awards of the Commonwealth Conciliation and Arbitration Commission. The first, the granting of an increase of 15s. per week in the basic wage, was sufficiently severe, but this has been followed by the margins decision, granting an all-round increase of 28 per cent. The influencing argument is that the existing prosperity must be shared, but the general attitude is that present prosperity is more apparent than real, and rests upon steadily increasing inflation. The effect upon the mining industry, both directly on the wages bill and indirectly in stores and materials, will be sufficiently serious; furthermore, increases in wages mean increased pay roll tax, a tax which has always been regarded with hostility.

Despite these awards unions are strongly dissatisfied. Already a campaign has been commenced for increases on the margins already granted and an increase in the basic wage by another £1 per week. Working hours have been added to the new claims, and the new demand is for a working week of 35 hours, instead of the existing 40 hours. The depressed state of the metal mining industry is disregarded, restrictions in output by lead-zinc producers, dependence of copper mining on the copper bounty; idle tungsten producers; the struggling beach sand mines, and gold mining faced with a fixed price and a cost position that must force the marginal mines to close down, are disregarded in demands and awards.

The coal mining industry is winning a long fight for survival and expansion and has recovered a substantial overseas market by reason of costs which permit competition with other potential suppliers of eastern Asian coal demands. Yet the immediate future position imperils all that has been gained and threatens ultimate unemployment on the coalfields, a position which caused active fears two years ago, and which was met by mechanization and reduction of costs and the consequent winning of new markets. The existing prospect, either of progress or at least of avoiding closure of mines, will now be seriously threatened and the immediate future of the industry is consequently gloomy. It can be expected that there will be much contention in the Industrial Courts over the allocation of margins to the numerous trade groups, none of which will be satisfied by a flat marginal increase of 28 per cent.

Award at Mount Isa Mines

The State Industrial Court of Queensland has given a judgement under which employees of Mount Isa Mines Ltd. will receive an extra £A750,000 per year under a new bonus system and award variations. A straight-out bonus of £A8 per week has been introduced subject to review, and the lead bonus has been discarded as outmoded; increased margins of £A1 per week have been granted to 2,000 members of the Australian Workers Union. Claims by 12 other unions for £2 per week more were rejected. The Court also rejected a claim by the A.W.U. for an award to cover its members only, separate from the all-embracing Mount Isa Mines Award. The Court excluded "fringe benefits" such as assistance with housing, low rentals with company homes, in assessing wage rates. The Court refused the Combined Unions claim to apply a 10 per cent shift allowance instead of the present 4s. per shift. The Court also refused the bulk of the 13 unions' claims, including a claim for an extra week's annual leave for all employees.

Copper Bounty

A Tariff Board enquiry is in progress into the copper mining industry and the influence of the Copper Bounty Act of 1958, which provided a subsidy by the Commonwealth Government when a copper mine's annual profit was less than 10 per cent. The bounty expires on June 30, and as small towns in the copper mining areas have been kept alive by it, the decision to be reached by the Tariff Board is of vital importance, not only to small producers, but also to the big producers, such as Mount Morgan, Mount Lyell and Peko Mines. At present the copper tariff is set on a sliding scale which ensures that refined copper cannot be landed at less than £A300 per ton. The Commonwealth Government is said to have asked the Board, in its enquiry, to have regard to the importance of maintaining decentralized communities.

The whole industry will be gravely prejudiced during price slumps if the Bounty should be withdrawn, and consequently, the Board's terms of reference include the effect, not only on the national economy but on several isolated communities, the need for assistance to the industry, and its possible nature and extent.

Need for Drilling Subsidy

At the annual meeting of the Chamber of Mines of Victoria, the president stressed the need for subsidies by the Commonwealth Government for diamond drilling for gold, and exploratory work for this metal. He stated that Victoria offered areas likely to respond to vigorous exploration and that the future of the gold mining industry in this State depends on the discovery of concealed orebodies which could be discovered by geological and geophysical study, followed by extensive drilling. Success in any one area would entirely justify government expenditure in assisting projects of this type.

Western Australian Iron Ore

Western Australia continues to urge a modification of the embargo on the export of iron ore by the Commonwealth Government, to permit some export by the State. In anticipation of some probable success, the State Government has called tenders for the mining of 5,000,000 tons of ore over a period of 10 years, at the rate of 500,000 tons per year, from Koolyanobbing north of Southern Cross, or alternatively, up to 10,000,000 tons at Mount Goldsworthy, 60 miles east of Port Hedland. The money expected to result from these enterprises is needed for long term works. Western Australia's high grade surface iron deposits have been estimated to contain 275,000,000 l.tons of ore, and the grade is assessed at 60 per cent. There are also extensive deposits of ferruginous material estimated at 223,000,000 tons of a grade between 30 and 45 per cent iron, and much more extensive occurrences with a content below 30 per cent. Little, if any exploratory work, however, has been done on these deposits, so no accurate estimate of actual commercial tonnage can be made, and extensive exploration will be necessary to establish the economic value of these occurrences, many of which can be expected to be small and of little account.

The Outlook for Non-Ferrous Metals

THE year 1959 will be remembered for the nation-wide strikes in the U.S. steel and copper producing industries, reports the British Metals Corporation Ltd. in its review of *Non-Ferrous Metals in 1959*, from which the following observations are extracted.

In the first half of 1959, whilst the prospect of the strikes was stimulating American industrial activity, business conditions elsewhere remained fairly quiet. In the second half trade turned upwards in European and other countries. Whilst restrictions on the supply side (in copper, lead and zinc, but not tin, where export quotas were raised quarter after quarter during the year) played their part, confidence was growing and buyers were returning to the markets. The auguries for 1960 are good. It seems probable that world consumption will attain new high levels in all four metals.

U.S. Consumption Marks Time

There is one astonishing feature of all four metals in the nineteen-fifties, namely, the standstill in consumption in the U.S., although her overall economy was expanding, on the average, at about 3 per cent a year. In contrast, consumption of the metals surged forward in most other countries of the world, communist and non-communist alike. By 1959 consumption of copper in the " rest of the Free World " was already far ahead of the Paley Report for 1975, zinc had covered four-fifths of the distance, tin three-fifths and lead more than two-fifths, but the U.S. had not even started. In Russia the rate of expansion has been even quicker than in Europe.

America's experience is surely exceptional and ephemeral. In the previous period, from pre-war to 1950, things had been just the other way round, consumption in the " arsenal of democracy " going ahead fast whilst consumption elsewhere in the Free World virtually stood still. Such divergence was bound to be corrected after 1950 or, rather, after the Korean war of 1951-52, as armaments demand both tapered and turned towards newer kinds of weapons, cutting into consumption of the four metals much more in the U.S. than in, say, the U.K., Germany or Japan; and also as these and other countries became more able not only to meet their own needs of metal semis, components and finished goods but also to compete with the U.S. in " third " countries. Still more, in the last year or two, metal fabricators have made inroads into the U.S. home market itself.

Besides all this, in the last ten years, substitution of the " traditional metals " in many applications by other metals and materials, notably aluminium and plastics, has undoubtedly gone further and faster in the U.S. than elsewhere. To find out why this should be—there is probably a variety of reasons—might handsomely repay close enquiry.

Altogether, the dice were heavily loaded against expansion in the usage of the four metals in the U.S. during the nineteen-fifties, but the bias must by now be largely corrected. Neatly enough at the start of a new decade, conditions may be ripe for a renewed advance in consumption of the metals in the U.S., along with further growth in the rest of the world.

Prospects for 1960

Despite the loss of 320,000 tons in U.S. output due to the strikes, world mine production of copper in 1959 surpassed 3,500,000 tons for the first time, reaching an estimated 3,750,000 tons. World consumption (newly mined) in 1959 at 3,550,000 tons, like mine production, also exceeded 3,500,000 tons for the first time.

Although the U.S. strikes made the headlines so persistently, and although their impact was so great, they are hardly as basic in the 1959 copper record as the big expansions of output in several countries, and including the U.S. itself in the first half of the year. *The* significant result in 1959, surely, is that, although 334,000 tons of production were lost from the strikes, world output, over the whole year, was not brought below the level of consumption. Producers' stocks of refined and blister copper, as recorded by the Copper Institute, *rose* by 80,000 tons, on balance, during the year, this being approximately offset by the total fall in stocks held by consumers and others.

Looking ahead rather to the second half of 1960, the prospect is decisively coloured by the still increasing world capacity to produce copper, notwithstanding that there is good reason to expect consumption to expand appreciably.

The surplus of production of lead in the world in 1959, as estimated, was notably reduced to 45,000 tons (of which some 40,000 tons were taken into the U.S. stockpile), from over three times as much in 1957 and 1958. Moreover, most of the 1959 surplus emerged in the first half of the year, the position in the second half being brought nearer, if not completely into balance by the further voluntary restriction of supplies from various countries and a better demand in European and other countries.

In 1960 one may reasonably assume that the anticipated higher rates of industrial activity in the U.S., Europe and elsewhere will raise the world total of consumption of lead, as of most other materials. This will be partly offset by a recovery in mine output in the U.S. where the import quotas will become more effective as U.S. demand expands and, for the rest, it will chiefly depend on the Study Group decisions to be taken at Geneva at the end of January as to what will be the overall world balance. (See *Mining Journal*, February 2, 1960, p. 161).

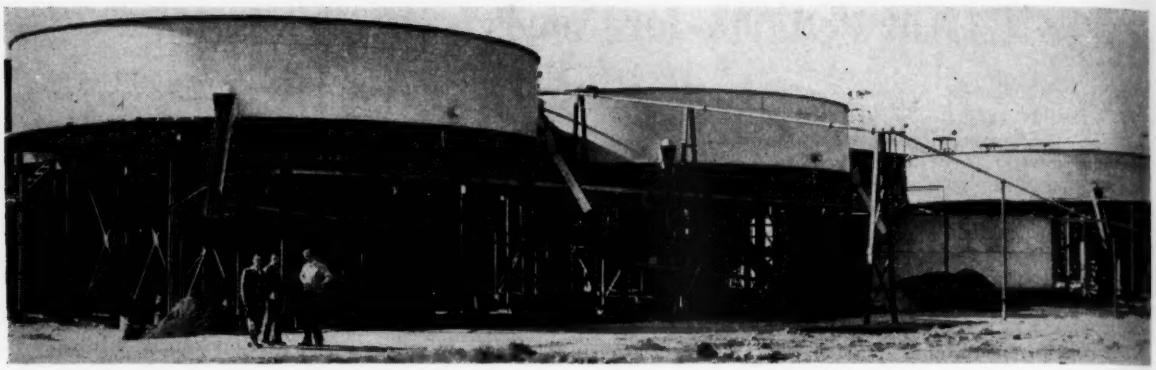
The outlook for the zinc market seems healthier than for many a long day, for output and consumption are now closely aligned. In 1960 there will undoubtedly be an appreciable rise in total world production, including a good recovery in the U.S., when it is free of strikes. Against this, consumption should expand substantially. In total the U.S. usage of zinc in 1960 may rise by well over 100,000 tons and perhaps come within striking distance of the 1,000,000 tons level of 1955. In the rest of the world, with industrial activity generally rising, zinc consumption should go ahead with it.

How, more precisely, the balance between rising output and rising consumption will be struck, and the market outcome, remain to be seen, but the two sides should match fairly evenly. It seems likely that, reversing the 1959 movements, the East St. Louis price in 1960 will move higher in relation to the London market.

After a depressing year in 1958 the fortunes of tin producers sharply revived in 1959, when the Council was able both to raise export quotas quarter by quarter and to sell a large part of its accumulated stocks, notwithstanding which the market was firm up to £800 a ton. In tin, 1959 was 1958 in reverse.

Altogether, the aims of the International Tin Council—to increase export quotas, to reduce the Buffer Stock holding of tin and yet not to depress prices—were well achieved in 1959, especially bearing in mind that uncertainty over the U.S. steel strike, at first whether it would start and afterwards how long it would go on, obscured the market outlook for much of the year.

It looks as if the latest rate of quota should amply cover consumers' requirements in 1960. In any event, there is still room to raise export quotas yet higher and to sell more tin from the Buffer Stock, if the Council should think it necessary.



Machinery and Equipment

Oil Resistant Tank Linings in Uranium Reduction

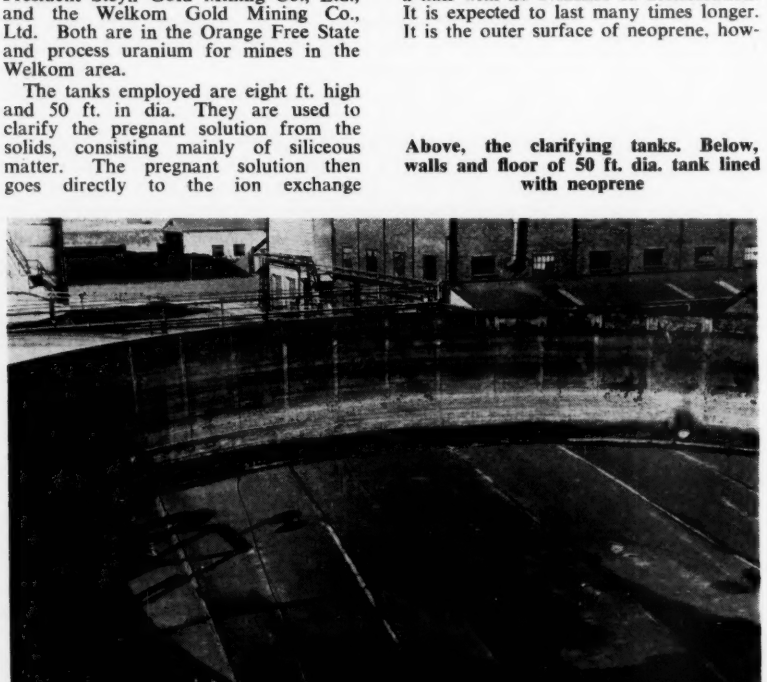
Rapid deterioration of previous tank lining materials has led operators of uranium reduction plants in South Africa to adopt neoprene.

One of the problems at these plants has been the attack by oil on lining materials used in the qualifying tanks. This has resulted in rapid impairment of other lining materials used in the past. Neoprene-lined tanks are located at the President Steyn Gold Mining Co., Ltd., and the Welkom Gold Mining Co., Ltd. Both are in the Orange Free State and process uranium for mines in the Welkom area.

The tanks employed are eight ft. high and 50 ft. in dia. They are used to clarify the pregnant solution from the solids, consisting mainly of siliceous matter. The pregnant solution then goes directly to the ion exchange columns from which the uranium oxide U-238 is extracted.

Neoprene, one of the first commercially available synthetic rubbers, has long been known for its outstanding resistance to oil, as well as to a number of corrosive chemicals. It also has excellent abrasion resistance. This material in combination with natural rubber has been in use in these tanks for a year and a half with no evidence of deterioration. It is expected to last many times longer. It is the outer surface of neoprene, however, which takes the brunt of the attack both from oil coming from the pumps and abrasion resulting from sandy particles washed from the uranium ore. The thinner sheet of natural rubber provides the backing.

Above, the clarifying tanks. Below, walls and floor of 50 ft. dia. tank lined with neoprene



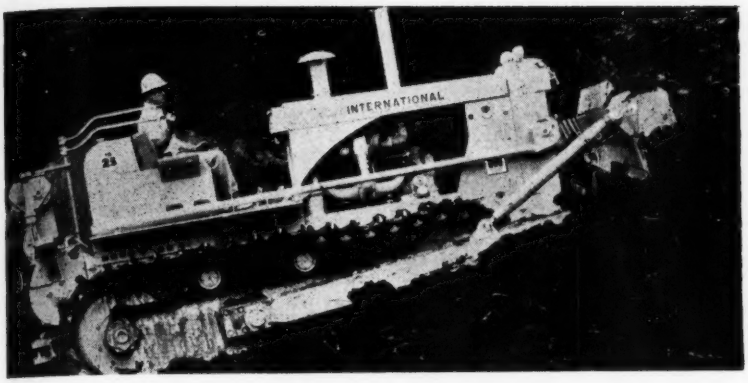
To make the lining $\frac{3}{16}$ in. thick, sheet neoprene is bonded to 1/32 in. thick natural rubber. These are precured. The natural rubber backing is then coated with cement and covered with glazed linen. After the precured lining material is transported to the tank sites, the linen is stripped off exposing the cement-coated backing. The cement-coated natural rubber backing is then affixed to the tank.

The tank linings described were manufactured and applied by Dunlop Industrial Products (Pty.) Ltd., of Benoni, South Africa. The linings were sold by J. H. Vivian and Co. Ltd., Johannesburg. The Du Pont Co. does not manufacture finished neoprene products but supplies the raw neoprene to rubber manufacturers who compound it and provide both finished rubber and rubber products.

UNDERGROUND SIGNALLING SYSTEM

An underground signalling system, recently installed at Barony Colliery, Scottish Division, N.C.B., is designed to give automatic control to four locomotives operating along a single underground track with by-passes. Designed in the East Ayr Area, the system gives automatically the equivalent service of a manned signal box located at pit bottom.

In setting out to provide a suitable system at Barony, it was found that independent control of the separate points would restrict the speed of operation of the locomotives without providing the necessary safety. The system actually adopted is the lock and block system similar to that used on British Railways. This involved the energizing of relays far in excess of the number which could be operated from an intrinsically safe source, and all equipment used had to meet flameproof requirements before the system could be installed.



The International TD-25 diesel tractor, here equipped with 260 rear cable control and D-3 front cable controlled bulldozer blade

Independent control boxes are provided at each set of points where signals are necessary. These control boxes are interlocked electrically. Each control box is an independent unit regarding power supply, but all are on the same primary supply so that a power failure will cut off all signals and not just one section. All signals and points indicators are fitted with two bulbs to guard against bulb failure.

This system gives constant supervision of each of the four locomotives in operation on the single track. On leaving the locomotive station, for which a signal is required, the locomotive enters the control system and never leaves it until it returns to the locomotive station. If locomotives are moving normally the system merely records the movements, but should they attempt to approach each other, either from in front or behind, the system immediately reacts and stops one or other of the locomotives, allowing the other to proceed under caution if it is safe to do so.

When a train is to proceed from the pit bottom inbye to the far end of the system, on striking an advance detector a message is passed in to the far end through each control box in turn. This alerts the whole system to the fact that a train is to pass through. Should the system be clear for the train to proceed, the last control box repeats the message back through all control boxes to the one from which it originated. This message then releases the proceed signal, and the train moves forward. At the same time another message is passed backwards to the next control box and all operative signals behind the train are locked out. As soon as the train has passed the proceed signal, the signal returns to normal and another message is sent inbye through each control box to the effect that the train is on the way. Except at by-passes, no other train will be accepted by the control boxes.

As the train passes each control box in turn it will receive clearance ahead and at the same time a message is sent backwards to clear all but the last section behind. It is, therefore, possible to have two trains proceeding inbye but there will always be one clear section between them.

The system is intricate, as every possible situation has had to be taken into account, and all failures are to safety. A manual has been drawn up, indexing each item of equipment and detailing all circuits, which greatly facilitates the location of faults. After exhaustive tests lasting for three months it has not been possible to produce any condition, normal or abnormal, in which the system could signal two trains into collision.

NEW GIANT CRAWLER

The International TD-25 diesel tractor —most powerful crawler ever produced by International Harvester is now available for export. The unit is designed for major earthmoving, pipe line laying, and mining operations.

The new TD-25 is available in either a torque convertor or gear-drive version. Both models are powered by International's DT-817 turbocharged engine—a six-cylinder, four-cycle, direct-starting engine developing 230 net h.p. at the flywheel at 1,500 r.p.m. Making a major advance in equipment standardization, the International DT-817 engine is also used in other large International earthmovers such as the Payscraper, Paywagon and the Payhauler.

Four speeds forward and four reverse are offered by the torque converter TD-25, which has a drawbar pull up to 70,000 lb. at .75 m.p.h., with adequate weight and traction. Operating weight is 46,000 lb. The gear-drive TD-25, with an operating weight of 45,500 lb., has a 46,700 lb. drawbar pull in first gear at rated governed speed. It has eight speeds forward and eight reverse.

Heavier, reinforced track frames have been designed for the tractor. Of "box within a box" construction, the frames are the strongest today in the industry. A new, heavy-duty radiator guard is standard equipment on the TD-25. Large-reservoir track rollers (Dura-rollers) have exclusive, cartridge-type seals. These rollers combine heavy-duty bushing design, drilled pressure-relief passages and metal-to-metal faced seals, giving a highly-durable roller requiring lubrication only at 1,000-hr. intervals.

Heart of the International TD-25's operating efficiency is IH's exclusive Planet-Power system, which permits turning with controlled power on both tracks, with effortless, finger-tip steering. This engineering refinement eliminates power-wasting, "dead-track drag" in turns, permitting the fully-loaded tractor to turn smoothly, under positive control, whether working upgrade, downgrade or on the level. Planet-Power also provides instant power shifting from one speed range to the next, as well as one-hand hydraulic braking of the tractor.

Equipment Digest

The latest NCK-RapieR excavator-crane made by Newton Chambers and Co. Ltd., and marketed by the N.C.K. Rapier Sales Co. Ltd., is the 405, which has a capacity of 1 cu. yd. when equipped as a face shovel. Machines are already in operation in this country and in Sweden the 405 is operating with face shovel and dragshovel on what is probably the toughest digging in Europe.

Some of the most interesting and important features of the 405 are: that the face shovel attachment is fitted with double box section dipper sticks and a positive independent chain crowd to ensure that the full digging power of the 100 b.h.p. diesel engine is transmitted to the bucket teeth. The power operated dipper trip ensures that the bucket door opens every time and the swing speed of 4 r.p.m. ensures continuous high output in really heavy digging. Steering is air controlled by means of one lever with finger-tip control. Movement can be right or left while travelling forward or backward. The wear on parts and the losses of power due to friction are at a minimum. The machine can readily steer on a slope as well as on the level. Control of all operations and movements is centralized in a bank of levers on the front right platform. The lever bank includes: swing, hoist, crowd, retract, boom hoist, steering brakes, engine clutch, dipper trip, forward and reverse traction clutches.

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Recently an agreement was signed between Ruston-Bucyrus Ltd., and Ableson and Co. (Engineers) Ltd., by which Ruston-Bucyrus Ltd., are to manufacture Buildmaster cranes under licence for Ableson and Co. (Engineers) Ltd., who will be the sole sellers of these machines in the United Kingdom and British Commonwealth. Specifications comply with B.S.S. 2799.

The machine being produced will be known as the Buildmaster 50R. and can be supplied with a mast of up to 100 ft. in height and a jib of up to 98 ft. 6 in. in length. The Buildmaster Model 50R is the first British built tower crane to be batch produced, and is the largest British built conventional type self-erecting rail mounted electric travelling tower crane ever to be manufactured in the United Kingdom.

Amongst the features of the crane, not the least important is the use of the new Stewart and Lloyds hollow rectangular section tube in the fabrication of the mast and jib. Sales, spares and service of the new Buildmaster 50R will continue to be handled solely by Abelson and Co.

Metals and Minerals

The Pattern of World Aluminium Production

Now that estimates of aluminium output in the various producer countries are beginning to come forward, it looks as if world production in 1959 was in the region of 4,400,000 s.tons, which would represent an increase of 13 per cent over the estimated 1958 total of about 3,900,000 tons.

In an analysis based on this forecast, *American Metal Market* considers that of last year's total output something in excess of three-quarters was produced in non-Communist countries. Apart from the U.S., where the annual output approximates to one-half of the entire world production, Western Europe ranks as the next most important producing area in the Free World, with a total output of around 630,000 tonnes. The British Commonwealth comes fourth among Free World producing areas with a total estimated production for 1959 of some 567,000 tonnes, of which more than 522,000 tonnes was produced in Canada alone.

Despite the plans now being mooted for development of such Commonwealth areas as Ghana and New Zealand, and for expanding output in countries currently producing the metal, our contemporary finds it difficult to see any radical change in the relative position for some years ahead. In say, ten years from now, forecasting simply on the basis of present plans, the Commonwealth's yearly production capacity is seen as being somewhere in the region of 1,400,000 tonnes of aluminium. West European expansion by that time is likely to give the area a total production of at least 1,300,000 tonnes, including production from present dependent territories like the Belgian Congo.

In its survey of the current year's prospects, the International Economic Research Bureau emphasizes that capacity still outruns possible consumption by a considerable amount. The report points out that the U.S. domestic aluminium industry has considerable unused capacity with approximately 270,000 additional tons under construction to provide an eventual 2,604,000 s.tons. Moreover, Canada is adding 90,000 tons to its present 866,000 bringing the ultimate Dominion total to 956,000 tons. It is pointed out that the combined North American 1960 capacity will thus be greater than the total Free World production in 1959, including such major producers as France, Germany and Norway, each of which produces more than 130,000 tons. Russian capacity has apparently been increased to around 710,000 tons; in the past, the Soviet has thrown aluminum on to the world market. Japanese aluminium production is rising, while in the past eighteen months new facilities have been added in Spain and Mexico, the latter being completed in early 1959. These, together with modernization of Taiwan facilities and other small facilities sprouting up in previously undeveloped countries, are seen as cutting off markets which were once U.S. and Canadian.

However, the picture is far from gloomy, having regard to the rate at which the use of aluminium is being expanded.

All major aluminium sources in the U.S. are predicting an increase of 15 per cent over last year's record demand of 2,400,000 tons. At the annual convention of the National Association of Home Builders last month, Mr. David P. Reynolds, vice-president of Reynolds Metals, forecast that aluminium consumption by the housing industry should more than double last year's 300,000 tons by 1965, adding that by that time the use of aluminium would have risen to an average of 450 lb. per house from the present 150 lb.

A survey by Kaiser indicates that the amount of aluminum used by America's can industry will increase from 7,500 s.tons in 1959 to more than 25,000 s.tons in 1960. It points out that aluminium cans have already been introduced successfully for beer and motor oil, and are gaining expanding use in processing foods.

New facilities to produce more than 60,000 tons of aluminium annually are to be started in the U.S. during the first half of 1960 to meet the increased demand. Current plans are for some 30,000 tons at the Evansville, Indiana, works of Alcoa and at least 33,000 tons at the Reynolds Metals plant, in Massena, New York. It is further reported that Alcoa is to restart an idle potline early in February at its Wenatchee, Washington, smelter, increasing the company's operating rate from 82 to 86 per cent of capacity. The facility was suspended early in 1958.

Kaiser Aluminium's operations in 1960 may average 90 per cent of capacity and "may be a little more than that", the company's president, Mr. D. A. Rhoades, told the New York Society of Security Analysts. Additional potlines which Kaiser expects to put into service, probably by the end of February, include one at Chalmette, La., of 27,000 tons a year capacity, and two at Mead, Washington, each of 22,000 tons. Emphasizing that international markets offered a tremendous potential for aluminium in all forms, Mr. Rhoades outlined Kaiser's expanding international operations in the U.K., Spain, France, India, Ghana and Argentina.

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So far as the U.S.S.R. is concerned, it is noteworthy that offers of Russian aluminium in the U.K. market have recently been difficult to obtain, while prices for small lots are equivalent to about £183 to £184 per ton delivered U.K. Apart from the question of avail-

LONDON METAL AND ORE PRICES, FEB. 11, 1960

METAL PRICES

Aluminium, 99.5%, £186 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £190 per ton
Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 10s. 0d lb.
Cerium (99%) net, £16 0s. lb. delivered U.K.
Chromium, Cr. 99% 6s. 11d./7s. 4d. lb.
Cobalt, 14s. lb.
Germanium, 99.99%, Ge. kilo lots 2s. 5d. per gram
Gold, 250s. 4½d.
Iridium, £23/£25 oz. nom.
Lanthanum (98%/99%) 15s. per gram.
Manganese Metal (96%/98%) £245/£250
Magnesium, 2s. 2½d./2s. 3d. lb.
Nickel, 99.5% (home trade) £600 per ton
Osmium, £21/£23 oz. nom.
Osmiridium, nom.
Palladium, Imported, £9
Platinum U.K. and Empire Refined £30 5s.
Imported £28½/£29½
Quicksilver, £71½ ex-warehouse
Rhodium, £50 oz.
Ruthenium, £18/£20 oz. nom.
Selenium, 50s. 0d. per lb.
Silver, 79½d. f. oz. spot and 79½d. f'd
Tellurium, 21s. 6d. lb.

ORES AND OXIDES

Antimony Ore (60%) basis	19s. 6d./21s. 6d. per unit, c.i.f.
Beryl (min. 10 per cent BeO)	230s. per l. ton unit BeO
Bismuth	30% 5s. 0d. lb. c.i.f.
	20% 3s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable 48% (Ratio 3 : 1)	£15 15s. 0d. per ton c.i.f.
„ Hard Lumpy 45% (Ratio 3 : 1)	£15 10s. 0d. per ton c.i.f.
„ Refractory 40%	£11 0s. 0d. per ton c.i.f.
„ Smalls 44% (Ratio 3 : 1)	£14 0s. 0d. per ton c.i.f.
Baluchistan 48% (Ratio 3 : 1)	£11 15s. 0d. per ton f.o.b.
Columbite, Nigerian quality, basis 70% combined pentoxides (Ratio 10 : 1). Nb_2O_5:Ta_2O_5	175s. per l. ton unit c.i.f.
Fluorspar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF_2)	156s. 0d. ex. works
Lithium Ore—	
Petalite min. 3½% Li_2O	40s. 0d./45s. 0d. per unit f.o.b. Beira
Lepidolite min. 3½% Li_2O	40s. 0d./45s. 0d. per unit f.o.b. Beira
Amblygonite basis 7% Li_2O	£25 0s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£23 0s. d/d
Manganese Ore Indian—	
Europe (46%-48%) basis 6/s. 6d. freight	73d./75d. c.i.f. nom.
Manganese Ore (43%-45%)	69d./71d. c.i.f. nom.
Manganese Ore (38%-40%)	nom.
Molybdenite (85%) basis	8s. 11d. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO_2 (prompt delivery)	£29 per ton c.i.f. Aust'n.
Ilmenite 52/54% TiO_2	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	155s. 0d./160s. 0d. per unit c.i.f
Vanadium—	
Fused oxide 95% V_2O_5	8s./8s. 11d. per lb. V_2O_5 c.i.f.
Zircon Sand (Australian) 65-66% ZrO_2	£16/£16 10s. ton c.i.f.

ability, the price differential by comparison with Canada's 186 per ton delivered is not considered large enough to attract buyers. The paucity of offers is thought to reflect Russia's growing needs for the metal, but whether this will result in U.K. imports over the ensuing months falling well below those for last year remains to be seen. Over January-November, 1959, they totalled 14,624 l.tons compared with 11,225 tons in 1958 and 15,449 tons in 1957, according to the British Bureau of Non-Ferrous Metal Statistics. In 1956 only 197 tons were imported.

★

The Australian Aluminium Production Commission plans to increase yearly production at the Bell Bay plant from 12,000 to 16,000 tons. A regular supply of bauxite is being sought from India to augment shipments from Indonesia and Manila.

U.K. QUICKSILVER MARKET

The London ex-warehouse quicksilver price is now quoted at £71 - £71 10s. per flask compared with £71 10s. recently. The general background to the market has not materially altered, but business is reported to be on the quiet side with price shading sometimes taking place in order to secure it.

STILL BARTERING

It is understood that the final touches are at last being put to the long drawn-out U.S./India barter deal, completion of which could be within the next two or three weeks. It is noteworthy, however, that whereas the deal formerly involved some 450,000 tons of U.S. wheat against 170,000 tons of high-grade ore and 100,000 tons of ferro-manganese, the latest report suggests that the Indian side of the deal will now consist solely of ferro, a good part of which will be shipped from other countries producing it from Indian ore. It is not clear at this stage whether the quantity of ferro will be more than 100,000 tons.

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The Japanese Ministry of Trade has authorized imports of 75,000 tons of manganese ore worth $U.S. 2,500,000 under the import budget covering the current second half-year period ending March 31, 1960.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

As a result of a variety of developments it has again been the firmness of the copper market which has stolen the limelight during the week. A good volume of business has been handled by the Exchange and with the possible exception of lead, the undertone generally can be described as fully satisfactory, encouraged by good buying support at the lower levels reached a week or so ago.

STEEP RISE IN COPPER BACKWARDATION

World copper prices have maintained the upward tendency. The latest developments in the U.S. strike situation were an important factor in this respect, as the Phelps Dodge settlement with the Mine Mill and Smelter Workers' Union at the Arizona plant was not reached until early in the week, and only subsequently was there agreement enabling a resumption of work at the El Paso Refinery. No settlement has yet been reached with the Steel Workers' Union at the company's Laurel Hill Refinery. It is estimated that in the case of both these refineries it will require two weeks to get back to full production and a further three weeks before the refined metal will be actually available to consumers.

Kennecott reports that moderate quantities of copper are now moving to their customers' plants but deliveries will not reach the maximum until April. Talks between Anaconda Co. and the Union have been resumed but, so far, no progress is reported. Any reaction which these more favourable developments might have brought about in world markets was counteracted by the declaration by American Smelting and Refining Co. of *force majeure* on its copper contracts owing to a breakdown of a wirebar furnace at its Perth Amboy refinery. The trouble is not regarded particularly seriously and should be put right in a matter of a few days, but a certain delay in deliveries will occur which, under present conditions, the U.S. market did not ignore.

There was a threat of labour troubles in Chile during the week following a rail accident and early demands were for a full stoppage but these were resolved into a 24-hour token strike involving an estimated output loss of 1,000 tons of metal. Consumer interests in the U.S. are tending to hold back being disinclined to pay the premium asked by dealers who quote around 38 c. for February delivery and 1 c. or so cheaper for March. Offerings of scrap copper have not been so liberal during the week and the market is steady at 26 c.

In London, following covering of nearby positions, a substantial rise in the backwardation has taken place and a rate of fully £30 has been seen between the cash and 3 months. Whilst this development is mainly of a technical nature following a further decline in U.K. stocks of 550 tons to 3,822 tons, the market cannot fail to take into consideration the overall picture. Undoubtedly the emphasis, if any decline in the general price structure occurs, will be on the nearby quotation.

Consumer demand on this side of the Atlantic continues at a satisfactory level and the premium on nearby electro has diminished owing to the higher cash price, although forward material is still hard to come by and such parcels as become available are at a substantial premium over the forward quotation.

Both the Canadian and Belgian prices have been advanced during the week; the Canadian from 30½ c. to 31 c. per lb. and the Belgian from B.frs. 36 to B.frs. 36½ per kilo.

TIN VALUES MAINTAINED

Tin has been a relatively quiet market with values well maintained as a result of satisfactory enquiry from both Continental and U.S. sources. Tin consumption in the U.S. in November last totalled 5,645 tons, an increase of 15 per cent over October, whilst during the first eleven months of the year indications point to a 5 per cent increase which, for the whole of 1959, will bring the total to 76,000 tons. Figures at present available show that exports of tin from U.S.S.R. to non-Communist countries last year will be a little short of the 13,500 ton limit agreed upon between Russia and the International Tin Council. U.K. stocks last week fell 156 tons to 8,447 tons and on Thursday the Eastern price was equivalent to £798¾ per ton c.i.f. Europe.

LEAD-ZINC PRICES LITTLE CHANGED

The lead and zinc markets have been uneventful and prices have been little affected by the outcome of the Geneva Conference, which was broadly in line with market expectations. In both cases supplies of nearby material are adequate as is shown in the fact that both markets are running at a small contango. In lead a small volume of selling pressure has found buyers lacking and some reports point to the arrival of metal in the U.K. of Russian origin. In the case of zinc, the contango is maintained as a result of the availability of metal of Mexican origin rather than from any consequences resulting from the removal of restrictions.

U.S. lead production in November last decreased 2 per cent to 20,900 tons. U.S. zinc consumption in November at 69,600 tons increased 6 per cent over October mainly as a result of the resumption of steel production early in the month. Smelter output at 62,300 tons was slightly below October's figure and smelter stocks at the end of the month were nearly 8 per cent lower at 176,200 tons. O.E.E.C. producer countries produced 61,821 tonnes of lead in December against 61,097 tonnes in November, whilst comparative figures for zinc were 74,987 tonnes and 71,463 tonnes.

Closing prices are as follows:

	Feb. 4		Feb. 11	
	Buyers	*Sellers*	*Buyers*	*Sellers*
COPPER				
Cash	£263½	£264	£269	£270
Three months ..	£244½	£245	£245½	£246
Settlement ..	£264		£270	
Week's turnover	10,875 tons		10,350 tons	
LEAD				
Current ½ month	£73⅛	£73½	£71⅝	£72
Three months ..	£73½	£74	£72⅛	£72½
Week's turnover	6,275 tons		5,900 tons	
TIN				
Cash	£792	£793	£792½	£793
Three months ..	£788½	£789	£790	£790½
Settlement ..	£793		£793	
Week's turnover	595 tons		530 tons	
ZINC				
Current ½ month	£89⅜	£89⅝	£89⅜	£89⅞
Three months ..	£89⅝	£89⅞	£89⅝	£90
week's turnover	6 575 tons		3,375 tons	

MINING MISCELLANY

Cable Belt of Scotland have recently started up five cable belt rope driven conveyor installations in Japan, all of which are operating in coal mines there. Two of these conveyors have a single driving unit, requiring 1,000 h.p. to drive.

★

For the first time since 1941, exports of gold bullion from Tanganyika for 1959 are estimated to be worth £1,000,000, while the estimated value of all mineral exports for last year is 6 per cent higher than in 1958, £6,743,481, against £6,341,787. This increase is due to higher exports of diamonds, gold and tin concentrates. Local sales from domestic production is estimated at £7,100,000, also a record figure. Diamond exports for the year 1959 are estimated to be 554,951 carats, valued at £4,483,700 compared with 515,453 carats (value £4,415,055) in 1958. Export of tin concentrates rose from £13,471 in 1958 to an estimated figure of £50,024 (93.21 l.tons) in 1958. Mica, with an estimated value of £52,204, was slightly higher than the 1958 figure of £51,226, but lead concentrates exported were slightly lower at £944,500, compared with £1,029,279 in 1958.

★

A "Ruhr Coal Mine Action Group" was founded in Essen, West Germany recently to assist coal mining companies in closing down unprofitable pits. The Ruhr Coal Mine Owners' Association stated that membership of the new action group was voluntary, but that it was hoped that many companies would join.

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The Turkish Institute of Mineral Research and Prospecting is carrying out a country-wide survey for the discovery of fresh iron ore reserves with which to meet the needs of a projected second iron and steel plant.

★

The Norwegian Government announced recently that, as a result of extensive investigation, and estimates based on present annual levels of output, the Svalbard coalfields deposits on Spitzbergen are expected to suffice for regular exploitation until at least the end of this century.

★

According to a presidential decree, persons in Mexico authorized to exploit sulphur in zones belonging to the national reserve must present periodically to the Ministry of National Patrimony reports on work planned or already completed in exploration, exploitation, production or industrialization of this mineral. The Mining Development Commission is in charge of supervising these operations, whether carried out under contract or special concession. The presidential decree instructs the Interministerial Commission appointed to study problems of extraction, production, export and supply of sulphur and to outline complementary measures required for regulation of production and distribution of this commodity.

The "Lenin" Iron and Steel Works, the largest in Poland, is to be expanded considerably under a plan, starting this year, which will raise output capacity to 3,500,000 tonnes of steel annually by 1965. This year's investment in this project will mean an increase of 38 per cent on last year.

★

According to Mr. P. E. Rousseau, managing director of Sasol, even if the present rate of coal usage in South Africa were doubled in the foreseeable future and extraction methods improved, the country's coal resources would last 500 years. Mr. Rousseau, who was opening the annual congress of the South African Geological Society, estimated the Union's coal reserves at approximately 75,000,000,000 s.tons. He added that South Africa was well placed to go over gradually from coal to nuclear power. In the Southern Transvaal and the Northern Free State the comparatively cheap production of coal would tend to delay the switch-over, but it was conceivable that a nuclear power station might be a proposition at the Cape by the 1970's.

★

The Ozd Coal Mining Trust, in Northern Hungary, has spent 65,000,000 forints (about £2,000,000) on the modernization of mining enterprises under its administration. This has included the building of a new coal-sorting plant at the Szarvasko collieries, which suply coal to the town of Eger.

★

Steel production in India this year may be seriously affected by the shortage of coking coal. According to the Coal Controller, the steel industry will require 8,000,000 tons of coking coal in 1960, but only 7,250,000 tons are likely to be available for allotment. The shortfall will have to be met by blending inferior grades of coal containing 17 to 20 per cent ash. The Tata Iron and Steel Co. is already using coke with an average ash content of 22.2 per cent. At the Mysore factory the average ash content of coke has increased by about 2 per cent.

★

Dust content of the air in Soviet coal mines is to be kept below one fifty-thousandth of an oz. to the cu. ft. by the use of new ultrasonic "catchers", which capture the dust by a vacuum device and settle it ultrasonically. These "catchers" are manufactured in Leningrad, where they are now in mass production and will soon be in use at several hundred pits.

★

Shipments by the Orinoco Mining Co., Venezuela, during 1959 reached a record 14,600,000 tonnes, as compared to 12,900,000 tonnes in 1958 and only 3,100,000 tonnes in 1954. The company sells about 60 per cent of its output in the U.S.A. and the balance to users in Venezuela, Britain, West Germany, Italy and Japan.

★

Marinduque Iron Mines in the Philippines suffered considerable damage at Bagacay, Samar, through Typhoon Harriet, which forced a complete shutdown for three weeks.

A pilot plant for the underground gasification of low-quality brown coal is under construction near the town of Chomutov, in Czechoslovakia's North Bohemian brown coal basin. A small test generator has been installed, to continue research already started. By the end of 1961, however, a larger generator, with a capacity of 20,000 cu. m. an hr., will be completed, and it is intended to run this for a trial period of three years, providing gas to local industry, and also providing experience in the economic utilization of inaccessible seams of low-quality brown coal which would otherwise have to remain unexploited.

★

The shaft-sinking record set up in November, when 1,001 ft. was sunk in the 27 ft. wide main shaft at President Steyn, has been surpassed by the mine's January achievement. During last month, 1,020 ft. was sunk in a 22 ft. wide ventilation shaft. The equipment used was similar to that described in *The Mining Journal*, December 4, page 581.

★

American Smelting and Refining Co. has announced that after 14 years of mine drilling, development and construction and expenditures of $235,000,000, a first shipment of raw copper in blister arrived at the company's Baltimore (Maryland) refinery, Southern Peru Copper Corporation, to be processed into electrolytic refined metal. Several further shipments of raw material were on the way to Asarco plants from the mine's copper smelter in Ilo, Peru. When completed in May, the Ilo smelter will produce about 140,000 tonnes of copper a year, or about 11,600 tonnes a month. Southern Peru Copper Corporation is jointly owned by four U.S. mining companies with 57½ per cent of the stock owned by American Smelting and Refining Co., 16 per cent by Cerro de Pasco Corporation and Phelps Dodge Corporation and 10½ per cent by Newmont Mining Corporation.

★

A report from Kuala Lumpur indicates that Malaya would recognize Japan as a member of the General Agreement on Tariffs and Trade and that Japan's membership is being discussed at trade talks now taking place in Kuala Lumpur. It was expected that the talks would lead to a formal trade agreement between the two countries. The Malayan Government is asking Japan to take increased purchases of Malayan raw materials in return for recognition of Japan's GATT membership, the materials being mainly rubber, iron ore, bauxite, ingot tin and titanium ore.

★

Kinoshita Shoten, a leading Japanese trading firm, together with the U.S. Steel Corporation and Guinea American International Development Corporation, are to start a survey of large iron ore deposits in Guinea, where the Guinean partner has a 70 year concession. The Japanese report that a preliminary survey of the Nimba deposits, near the Liberian border, by Professor W. H. Patmore of Princeton University showed reserves of 25,000,000,000 tons. The survey is to examine the possibility of developing the mines for the American and Japanese steel industries.

Mining Finance

News from the Copperbelt

The quarterly reports from the R.S.T. group, summarised below, contain nothing in the way of surprises. Compared with the previous three months, the average revenue per ton was about £15 higher, and with slightly higher sales tonnages, both Roan Antelope and Mufulira showed improvements of the order of 10 per cent on copper sales account. Because some cost items are linked to the copper price, higher expenditure absorbed some of the improvement. Nevertheless, both companies showed satisfactory rises in profits.

As pointers to the results for the full year, however, the current quarterlies are of limited usefulness. Now that the U.S. strike is ended, the copper price must become vulnerable, although there will almost certainly be occasional jumps in the price as a result of short-term shortages. Nevertheless, it is unlikely that the average received by Roan and Mufulira in the next five months will fall much below that for the first half of the year. On this basis net earnings may well be up by perhaps 20 per cent.

Another important item from the Copperbelt this week was the preliminary earnings and dividend statement of Chartered—the British South Africa Company. As expected, income showed a substantial rise, and the dividend was raised. If there was any real surprise, it was the effect on the market of these results, which, apparently, were considered to be below expectations.

The figures were: Net profit after all charges, 1958, £4,363,217; 1959, £6,584,138. Dividends, 1958, 4s. 6d.; 1959, 6s. In addition, a special dividend of 9d. was paid at the end of March last year.

	Sales (tons)	*Revenue (£'000)*	*Est. Profit (£'000)*
Roan ..	22,466	5,434	1,564
Mufulira ..	25,369	6,280	2,008
Chibuluma ..	5,702	1,357	493

RIGHTS OFFER BY FALCON

A rights offer of 181,561 5s. shares at 8s. per share is planned by Falcon Mines, the Rhodesian gold producer. The gross proceeds of the issue, to be made in the ratio of one for ten, will be £72,624.

Over the past three years, Falcon has been busy expanding. First, the mill capacity at Dalny, the most important mine of the group, was increased, and, after the commissioning of the additional plant in 1957, the output from the mine was gradually raised to match the full capacity of 20,000 tons.

This programme has now been completed, in spite of early teething troubles, and attention is being turned to further exploration along the 4½ miles of strike within the Dalny area, only a small part of which has so far been exploited. The Pixy and Arlandzer sections, in particular, have been investigated by drilling, and results have proved sufficiently good to justify accelerated exploration.

A shaft has been sunk to a depth of 380 feet on the Pixy section, and early development results have been promising. In the current year it is proposed to deepen this shaft to 500 feet. In the Arlandzer section, work is being concentrated on an examination of the Arlandzer reef in old workings and there are indications that this horizon will prove very similar to the Dalny reef itself.

This is, of course, a major programme for a comparatively small company, and with Falcon's resources already at full stretch following the output expansion referred to above, a share issue was inevitable. The directors say that there should be no difficulty in maintaining the current 17½ per cent dividend rate on the increased capital. Present holders should certainly take up their rights, for in spite of the comparatively low yield of 7.3 per cent on the shares currently in issue, they are an interesting proposition for a gold interest outside the Kaffir market.

END OF AN OLD-TIMER

After forty years' milling, Modderfontein East has given three months' notice of its intention to cease operations. For many years, Modder E. has been living on the narrowest of margins. The mill grade has recently been steady at around 2 dwts., and in spite of extremely low costs, since 1956 profit per ton has rarely exceeded 6d.

Development is virtually complete, and, in spite of the fact that dumps have been supplying a substantial proportion of mill tonnage, reserves have been declining fast. By the end of the 1959 financial year they were down to 492,000 tons—barely four months' mill feed—and by now this figure has probably sunk to less than 350,000 tons. It is worth noting, however, that the remaining tonnage is probably of a comparatively high grade, so that a mixture of this ore with low-grade dump material might keep the mill running for another year or more. Any sudden set-back like a pressure burst or winder breakdown, however, could force the more or less immediate closure of the mine, and this is presumably the reason for the notice now given under the Gold Law.

It is probable that the next event in Modder East's life will be a bid by Corner House Investment for the shares. If previous practice is followed, this will be pitched very close to the market price. The stronger-nerved investor may prefer to hold on, in spite of the risk involved in being a minority holder, in the hope of a profitable break-up, though the present price of around 15s. 9d. makes some substantial assumptions about the value of Modder's freehold and other fixed assets.

LONDON MARKET HIGHLIGHTS

Monday was a bleak day for the London Stock Exchange. A fresh slide on Wall Street coupled with the threat of a nationwide rail strike produced a good deal of nervous selling and prices in all share sections were marked down sharply.

Although South African gold mines scarcely stand any chance of being affected by a rail strike here, their share prices wilted along with the rest. Actual selling was very light—possibly made in order to pay for losses in the Industrial sections—but the almost complete absence of buying support resulted in quite substantial price falls. And for once the Cape seemed reluctant to take up stock offered from London.

However, a steadier tone developed on Tuesday and the recovery was extended on the following day. Johannesburg led the way with renewed buying orders and with stock still rather short, share prices responded smartly. Western Holdings, for example, which had tumbled to 175s. on Monday rebounded to 177s. 6d. and "Ofsits" rallied from 103s. 6d. to 105s. 3d.

The better tendency spread throughout the list of prices but an outstanding move in the Finance group was the spurt of 3s. to 74s. 9d. in Rand Selection; various rumours—none of which could be officially confirmed—were heard and the most popular among them was that some kind of take-over bid might be in the offering.

Copper shares behaved rather similarly to Kaffirs, a good recovery following earlier dulness. But if the original dulness in Golds seemed largely unjustified, the set-back in Copper shares was even more perplexing. Admittedly, Wall Street always has a strong influence on the Rhodesian market, but this might have been expected to be overshadowed by a copper price soaring to its highest since 1956, not to mention the fresh advance in profits announced by Rhodesian Selection Trust and Roan Antelope for the December quarter.

Some shrewd investors may well have decided, in view of this year's good earnings prospects for Coppers, that last week provided a good opportunity to buy shares. At all events, the recovery that set in on Wednesday was a sharp one. Rhokana jumped 1s. 10½d. to 68s. 9d. and Nchanga 1s. 3d. to 70s. Chartered's rise to 110s. 6d. was helped by rumours that the company was doing a share deal with Anglo American; a similar operation, it was thought, to the one last year, whereby Chartered acquired 700,000 Union Corporation in exchange for 455,000 Chartereds. It is interesting to note that since then Union Corporation have risen from 56s. to their present 85s. 3d. and Chartered from 84s. 9d. to 110s. 6d.

Tin shares were unaffected by the fluctuations in other sections. They were not helped by the general tenor of the House, but losses were small. The East, satisfied by the satisfactory way in which the current quarter's high export quotas are being absorbed, again bought selected issues from time to time. Lead-zincs tended to edge higher in quiet trading, but San Francisco eased to 20s. 4½d. on news that the dividend is once again being passed.

Financial News and Results

M.T.D. Issue Success.—The issue by M.T.D. (Mangula) of 2,000,000 5s. shares by way of rights at 9s. 6d. was extremely successful. A total of 1,986,134 shares were taken up, leaving only 0.67 per cent to be sold on the market.

Rambutan Results.—"Much better results can confidently be expected" from Rambutan's mining operations, says Mr. W. E. Hosking, the chairman, in his review for 1958-9. The accounts for the last financial year show a loss of £10,250 as the result of a full year's working under rates of restriction ranging from 42.9 to 48.5 per cent of assessment. Meeting, February 24.

San Francisco Results.—In the year ended September 30 last, San Francisco Mines of Mexico managed to turn the previous year's loss into a profit of £133,514. In spite of this, no dividend is recommended. Abnormally high stocks of metals were held at the year-end, and these have increased still further in the past five months. Meeting, March 15.

METALLURGICAL ASSISTANT

required by group of Gold Mines in GHANA for position in Reduction Works. Applicant should have had previous milling experience (not necessarily gold) and/or some technical training. Age under 40. This is a progressive position and a good salary commensurate with experience and qualifications will be paid. Benefits include marriage allowance of £15 per month or paid passage for wife each tour, free medical attention, life insurance, housing with basic furniture, low income tax rates. A contributory pension fund is in operation. Fifteen months tour with three months leave on full pay, passage paid both ways. Write giving particulars to Box 10, Walter Skinner, Ltd., 20 Copthall Avenue, London, E.C.2.

A large Mining Company operating in Upper BURMA, climate sub-tropical and healthy has vacancies for:

UNDERGROUND SHIFT BOSSES

Applicants must have had practical experience, preferably of approximately ten years duration, in soft rock and square set mining, driving, rising, and repair and maintenance work.

Four years agreement: six months paid leave of which three months normally permitted after two years: contributory Provident Fund: Retirement Gratuity Scheme: free passage, medical attention and partly furnished quarters.

Initial salary and allowances aggregate K.1,225 (£91 17s. 6d.) rising to K.1,375 (£103 2s. 6d.) per month. Advise fullest details, education, qualifications, experience, age and family status. Write Box V.434, W.P.S., Thavies Inn House, Holborn Circus, London, E.C.1.

LORAINE GOLD MINES LIMITED

(Incorporated in the Union of South Africa)

INCREASED TONNAGE MILLED

MR. B. L. BERNSTEIN'S REVIEW OF OPERATIONS

The 10th Annual General Meeting of Loraine Gold Mines Limited, will be held on March 8 in Johannesburg.

The following is an extract from the Review by **Mr. B. L. Bernstein** (Chairman) which has been circulated with the Report and Accounts:

During the year under review good progress was made with the programme to open up the former Riebeeck area. Priority was given and continues to be given to driving the 52nd level twin haulage southward towards No. 3 Shaft. The haulage and its companion were advanced 7,589 feet and 7,918 feet, respectively, during the year and at the end of December, 1959, had progressed to a position approximately 1,000 feet beyond Borehole T.V.2. If the present rate of progress is maintained and assuming that development is commenced from No. 3 Shaft not later than June of this year, a holing should be made before the end of 1960. When a connection is established, improved ventilation will result and development on Elsburg reefs will commence from several points along the haulage which is advancing off reef in the Elsburg series. Until this holing is made ventilation considerations and the priority which has been given to advancing the twin haulage will continue to restrict to a minimum the amount of development which can be carried out on reef from the haulage.

In the last quarter of 1959 a small amount of reef development was done in the vicinity of Borehole T.V.2 and of 165 feet sampled 160 feet, equivalent to 97 per cent were payable at 860 inch-dwt and 13.28 inch-lb over a channel width of 18.9 inches. Owing to suspected faulting no positive correlation can as yet be made between the reef bands exposed in development and those intersected in Borehole T.V.2.

From the 48th level further reef development and a limited amount of stoping have been accomplished in the upper zone of the Elsburg reefs. In December, 1959, the amount of ore drawn from this source, about half of which was from development, had increased to approximately 14 per cent. of the tonnage hoisted for milling.

During the year ended September 30, 1959, 2,380 feet were sampled on the Elsburg reefs of which 83.2 per cent was payable averaging 536 inch-dwt. resulting in some 80,000 tons at 9.15 dwt per ton being added to the total ore reserve, thereby increasing its average value by 0.62 dwt per ton. For the quarter ended December 31, 1959, 1,505 feet were sampled on the Elsburg reefs of which 85.7 per cent was payable at an average value of 690 inch-dwt.

Development on Basal and "B" reefs was confined during the year to the more promising areas and this policy will be maintained during the present financial year. Of the footage sampled on these reefs during the quarter ended December 31, 1959, 28.2 per cent on the Basal reef was payable at 174 inch-dwt and 24.6 per cent on the "B" reef was payable at 288 inch-dwt.

At the end of December, 1959, No. 3 Shaft had reached a depth of 5,457 feet below the surface and all stations down to the 54th level had been excavated. It is expected that the shaft will be in commission by June, 1960, when full scale development from the shaft will be commenced.

The Year's Results

Profits for the year, including interest received, totalled £206,114. After deducting the deficit of £158,805 brought forward from 1958, an unappropriated balance of £47,309 has been carried forward to the new year. Unexpended capital funds of £2,729,130 were on hand at the end of the financial year.

Details of capital expenditure incurred during the year are set out in the technical advisers' report. During the current financial year expenditure on capital account is estimated at £2,700,000. This estimate covers the amounts to be spent on completion of No. 3 Shaft and ancillary development, a surface railway between No. 2 and No. 3 Shafts, capital development, facilities for the disposal of underground water and the erection of a hospital for Native employees.

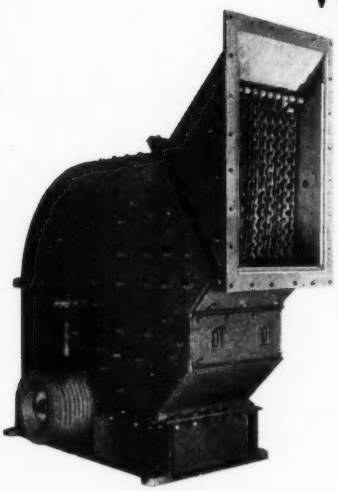
Modifications and improvements to the reduction plant have increased its efficiency and raised its capacity to 82,000 tons per month. The mill has been operating at this capacity since July, 1959. The tonnage milled during the year under review was 114,500 tons more than in the previous year.

It is expected that during the current year the mill grade of the mine will continue to show some improvement, and in turn it can be anticipated that the small profits now being earned will be slightly increased. No great change in the earning capacity of the mine can be expected, however, until considerably more ore is drawn from stopes on Elsburg reefs.

Riebeeck Lease Area Agreement

As a result of the company having acquired the undertaking of Riebeeck Gold Mining Company Limited under the scheme of arrangement sanctioned by the Supreme Court in 1958, the area on which Loraine is entitled to conduct mining operations has been very considerably enlarged. Agreements have been entered into with General Exploration Orange Free State Limited and Middle Witwatersrand (Western Areas) Limited whereby those companies will be entitled to re-acquire from the company at the original cost to Riebeeck Gold Mining Company Limited the mineral rights falling outside the Riebeeck lease area and contiguous to its western boundary, since your Directors are of the opinion that precious metals are unlikely to be found thereon, and the rights to coal and clay (and coal is known to occur on the area) were reserved to the vendors in the Riebeeck Flotation Agreement. Loraine has, however, the right, subject to the terms of the said agreements, to retain an area not exceeding the equivalent of 20 per cent of the present Riebeeck lease area for incorporation in its lease area in case, contrary to expectations, precious metals should be found to occur beyond the western boundary of the present lease area.

More crushing force with a *ROCK BUSTER*



The range of Rock Busters caters for feed sizes from 12 inches to 40 inches.

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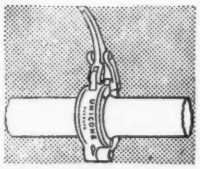

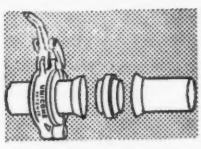

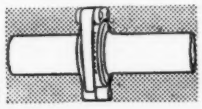

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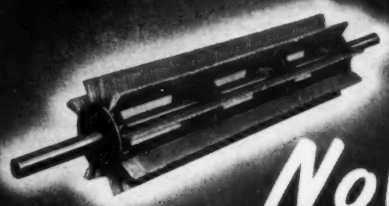

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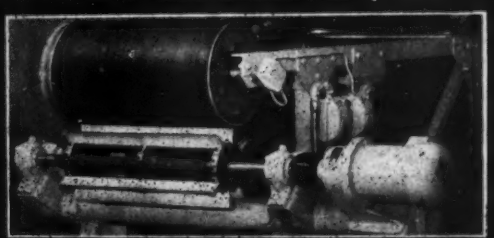

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INDUSTRIAL DIVISION

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PERSONAL

Following the appointment of Mr. R. G. C. Cowe, formerly Deputy Secretary, as Secretary of the National Coal Board, it has been decided that the duties previously performed by the Deputy Secretary and by the Head of the Board's Central Secretariat should be reallocated between two Under Secretaries, Mr. W. J. S. McKinnel and Col. F. W. Webb, have been appointed to these posts.

★

Mr. J. A. Goddard, director and secretary of Fry's Diecastings, has been elected chairman of the Zinc Alloy Die Casters Association for 1960. He succeeds Mr. K. J. Whitehead, joint managing director of Wolverhampton Die Casting Co.

★

Mr. S. H. Ireland has been appointed assistant managing director of the Consolidated Pneumatic Tool Co.

★

Mr. Richard Miles, chairman and managing director of Head Wrightson and Co. Ltd., retired at the end of the company's financial year, January 31, 1960. He had been chairman of the company for ten years, and managing director for twenty-five. He remains on the board of the parent company. Sir John Wrightson, Bt., vice-chairman, and managing director for the last ten years, has been appointed to succeed Mr. Miles as chairman and managing director.

★

Birtley Engineering (Member of the B.S.A. Group) have appointed Mr. E. V. Tidbury as sales engineer for the Midlands area, based on the Birtley office. This duty in Northern England and Scotland is now covered by Mr. T. A. Weatherspoon, operating from Birtley, and in the Home Counties by Mr. S. Dickinson (operating from their London office).

★

The Lead Industries Association has announced the election of Mr. Jean Vuillequez, vice-president of American Metal Climax, Inc., as president, chairman of the board of directors, and chairman of the executive committee of the Association. Mr. Vuillequez is also a director and member of the executive committee of American Metal Climax and has been a member of the board of directors of the Lead Industries Association since 1953. He is a director of many companies in which American Metal Climax has interests and of the American Bureau of Metal Statistics, the American Zinc Institute, U.S. Copper Association and Copper Institute.

ASSOCIATED ELECTRICAL INDUSTRIES

Effective co-operation between the two departments within A.E.I.'s Heavy Plant division has now made it possible to unite them in a single new Plant Applications Engineering Department.

The manager of the new department, with headquarters at Rugby, is Mr. O. T. Evans, hitherto manager of Plant Applications Engineering Department (Manchester). Mr. W. Spence, until recently manager of Plant Applications Engineering Department (Rugby), is deputy manager.

Engineers-in-charge are: Mr. L. Abram, mining projects, Mr. P. E. Peck, metal industries projects, Mr. J. McTaggart, regulating systems and general projects, and Mr. H. Williams, control equipments.

Mr. J. N. M. Legate, has been appointed manager, Control Gear Engineering Department (Manchester), of Motor and Control Gear Division. Mr. C. T. Scarf has been appointed chief control gear development engineer, of the Division.

A.E.I. (Rugby) announce the appointment of Mr. R. Thomson as Manager—Transformer Factory. Mr. G. P. Thompson has been appointed Manager—Manufacturing.

MORE NYLON IN CONVEYOR BELTING

CONSUMPTION of nylon yarn for conveyor belting during 1959 was three times as great as during the previous twelve months and was still rising steadily at the end of the year. This rapid increase makes it clear that nylon is well on the way to becoming a major fibre for belting.

Solid-woven belting containing a substantial proportion of nylon is, of course, firmly established. It has been gradually improved during the past few years and now has a very high reputation for toughness and durability. It is frequently used by the National Coal Board as one of the "controls" against which new belts are tested.

Inspired by this success manufacturers have devoted great effort to the development of plied belting containing nylon. This work has been encouraged by the introduction by the National Coal Board of a "limited approval" scheme under which quantities of about 50,000 to 100,000 ft. of promising-looking belts containing man-made fibres are being bought.

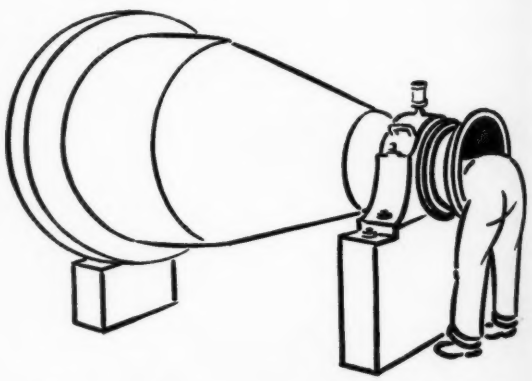
The National Coal Board believes that judicious use of man-made fibres can increase the service life of conveyor belting by 50 per cent or more. Most belting manufacturers consider that nylon is the most suitable fibre for this work. The majority of the belts which had been granted limited approval by the end of last year contained nylon and substantial quantities are now in use.

In addition to these limited approval belts there are several belts containing nylon which have been given full N.C.B. approval. Manufacturers are also producing other belts containing nylon to satisfy the needs of other industries.

Already there is growing evidence that greater resistance to edge wear and greater resistance to impact damage are resulting in substantially longer service life with marked reductions in costs per ton handled.

Although all leading British conveyor belt manufacturers are now producing belting with nylon in the weft—improvements in lateral strength were the most urgent need—this is regarded as only the first step by British Nylon Spinners Ltd., the producers of the nylon yarns.

The second stage is the introduction of mixture belts with nylon in both warp and weft and several manufacturers are already producing belts of this type. The third stage will be the introduction of all-nylon high-tensile belting for long-centre working. This is still under development but several promising experimental lengths have been produced. Once these belts have become established it will be only a short step to nylon becoming adopted as the basic fibre for conveyor belting.



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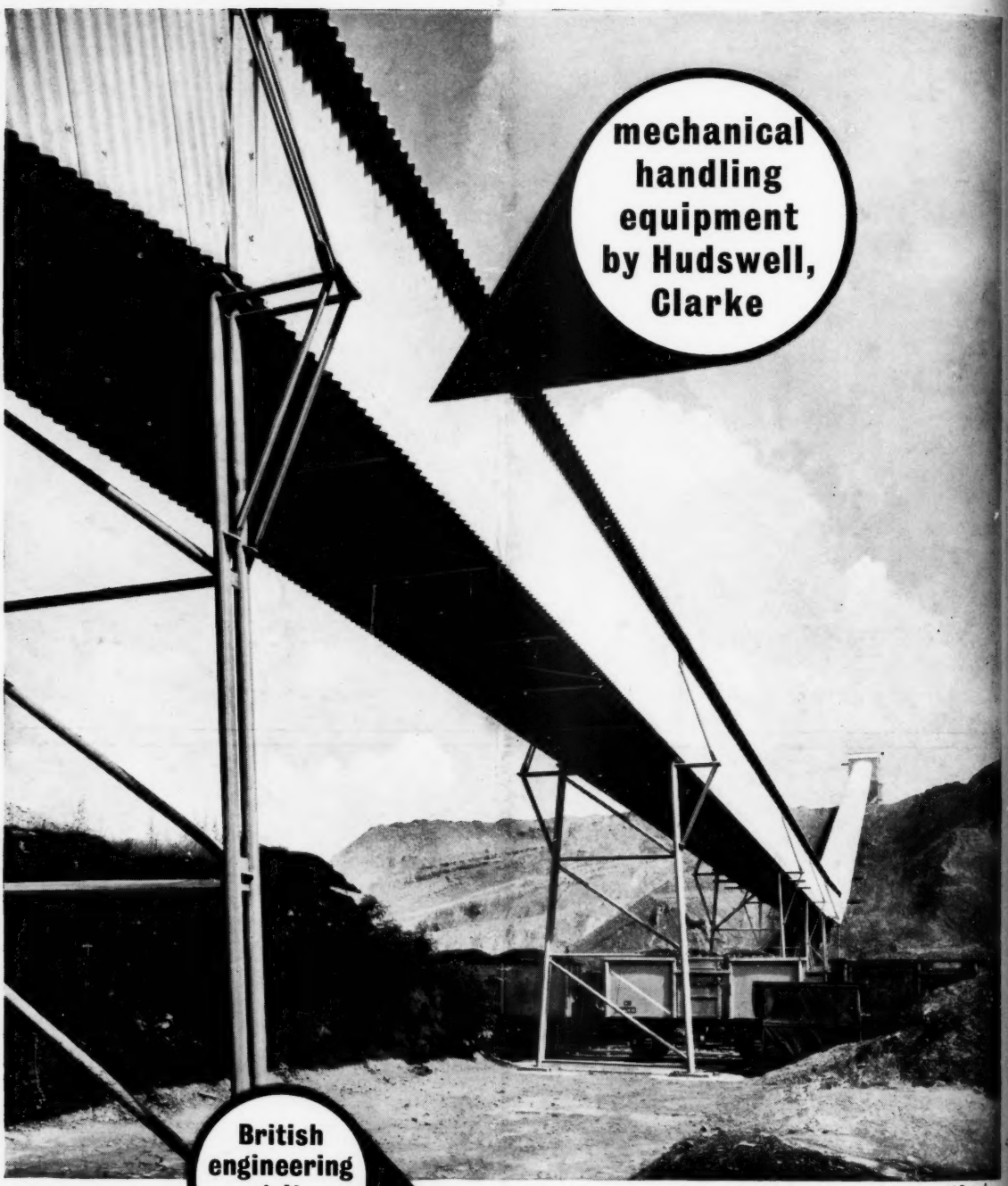

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